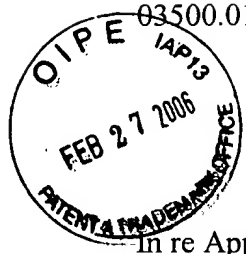


IFW



03500.015408

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
SHIGEHIRO KADOTA)
Application No.: 09/873,249)
Filed: June 5, 2001)
For: DISPLAY DEVICE)
Examiner: A.A. Awad
Group Art Unit: 2677
February 27, 2006

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SUBMISSION OF SWORN ENGLISH TRANSLATION

Sir:

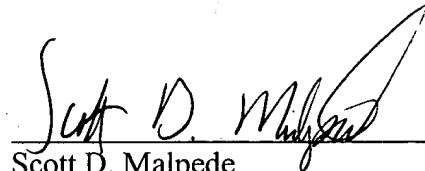
Further to the Amendment filed January 26, 2006, Applicant respectfully submits herewith a sworn English translation of the priority document for the subject application, i.e., Japanese Patent Application No. 2000-171112, filed on June 7, 2000.

Accordingly, pursuant to 35 U.S.C. §119 it is respectfully requested that U.S. Patent Application Publication No. 2002/0135536 (Bruning), filed March 22, 2001, be removed as a reference. Reconsideration and withdrawal of the outstanding rejection of Claims 1-7 under 35 U.S.C. §103 based, in part, on Bruning, is therefore submitted to be in order and such action is respectfully requested.

Appln. No.: 09/873,249

Applicant's undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,



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DECLARATION

I, NOBUAKI KATO, a Japanese Patent Attorney registered No. 8517, of Okabe International Patent Office at No. 602, Fuji Bldg., 2-3, Marunouchi 3-chome, Chiyoda-ku, Tokyo, Japan, hereby declare that I have a thorough knowledge of Japanese and English languages, and that the attached pages contain a correct translation into English of the priority documents of Japanese Patent Application No. 2000-171112 filed on June 7, 2000 in the name of CANON KABUSHIKI KAISHA.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made, are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signed this 20th day of February, 2006

A handwritten signature in cursive script, appearing to read "Nobuaki Kato", written over a horizontal line.

NOBUAKI KATO

PATENT OFFICE
JAPANESE GOVERNMENT

This is to certify that the annexed is a true copy
of the following application as filed with this office.

Date of Application: June 7, 2000

Application Number: Japanese Patent Application
No. 2000-171112
[JP 2000-171112]

Applicant(s): CANON KABUSHIKI KAISHA

June 19, 2001

Commissioner,
Patent Office

KOZO OIKAWA

(Seal)

Certificate No. 2001-3057373

2000-171112

Applicant's Information

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(Reason of Change) New Registration
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2001-3057373

2000-171112

[Name of the Document]	Patent Application
[Reference No.]	4172006
[Date]	June 7, 2000
[Addressed to]	Commissioner of the Patent Office
[International Classification]	G02F 1/13
[Title of the Invention]	Display Device
[Number of the Claims]	4
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[Patent Attorney]	
[Name]	TSURUHIKO SEKIGUCHI
[Telephone Number]	
[Indication of Official Fee]	
[Prepayment Ledger No.]	002048
[Amount]	¥21000

[List of Filed Materials]

[Material]	Specification	1
[Material]	Drawings	1
[Material]	Abstract	1
[Proof requirement]	necessary	

CFO15408

2000-171112

[Name of the Document] Specification

[Title of the Invention] Display Device

5 [Claim(s)]

[Claim 1] A display device comprising:

coordinate input means for inputting coordinate of
said display device; and

transmission means for transmitting the device
10 data input to said display device from said display
device to an information processing device.

[Claim 2] A display device according to claim 1,
wherein first and second of said display devices are
juxtaposed, further comprising means for divisionally
15 displaying a screen of said information processing
device while arranging said first and second display
devices, means for transmitting the coordinate data
input from said second display device to said first
display device, and means for converting the coordinate
20 data input from said second display device to
coordinate data of said information processing device.

[Claim 3] A display device according to claim 1
or 2, wherein said means for divisionally displaying
divisionally displays a screen of said information
25 processing device while arranging two or more of said
display devices.

[Claim 4] A display device according to any one

of claims 1 to 3, further comprising a CPU (central processing unit) for controlling the entirety of said display device and a storage medium for storing a program to be executed by said CPU.

5 [Detailed Description of the Invention]

[0001]

[Field of the Invention]

The present invention relates to a display device, and more particularly to a display device having
10 coordinate input means such as digitizers.

[0002]

[Prior Art]

Some conventional display devices use digitizers as their coordinate data input means. Although a
15 digitizer connected to a conventional display device can input coordinate data in a range of its screen area, it does not deal with coordinate data input when a plurality of display devices connected to a display system are used.

20 [0003]

Therefore, only a digitizer connected to an information processing device can input coordinate data by using a multi-display function realized, for example, by Windows 98.

25 Conventional coordinate input means of display device are therefore associated with a problem that not all the display devices can input coordinate data in an

multi-display environment.

[0004]

[Problem to be Solved by the Invention

In a conventional example, it is not possible to
5 enter coordinate from all display devices when multiple
displays are used.

It is an object of the present invention to
provide a display device capable of entering from
digitizers of all display devices in a multi-display
10 environment.

[0005]

[Means for Solving the Problem]

In order to achieve the above-mentioned object, a
display device according to the present invention
15 comprises coordinate input means for inputting
coordinate of the display device and transmission means
for transmitting the device data input to the display
device from the display device to an information
processing device.

20 [0006]

In the present invention, a display device,
wherein first and second of the display devices are
juxtaposed, further comprising means for divisionally
displaying a screen of the information processing
25 device while juxtaposing the first and second display
devices, means for transmitting the coordinate data
input from the second display device to the first

display device, and means for converting the coordinate data input from the second display device to coordinate data of the information processing device.

It is desirable that the means for divisionally
5 displaying divisionally displays a screen of the information processing device while juxtaposing two or more of the display devices.

[0007]

The display device may further comprises a CPU
10 (central processing unit) for controlling the entirety of the display device and a storage medium for storing a program to be executed by the CPU.

[0008]

[Embodiment(s)]

15 Preferred embodiments of a display device and a display system according to the invention will be described with reference to the accompanying drawings. The display device of the embodiment is applied to a data projector.

20 [Embodiment of Display Device]

Fig. 1 is a block diagram of a first display device of the embodiment. In Fig. 1, reference numeral 1 represents a display device. Reference numeral 2 represents a system bus to which various units of the display device are connected. Reference numeral 3
25 represents a CPU (central processing unit) for controlling the entirety of the display device, and

executing various processes.

[0009]

Reference numeral 4 represents a ROM which stores a program to be executed by CPU 3 and other data.

5 Reference numeral 5 represents a RAM which stores image data to be described later and other data. Reference numeral 6 represents a remote control interface (I/F) for communicating with a remote controller of the display device 1. Reference numeral 7 represents a
10 serial communication output interface (I/F) for communication (transmission means) with an information processing device or the like. Reference numeral 8 represents a serial communication input interface (I/F) for communication (reception) with a display device
15 having the same structure as that of this display device 1 via a serial communication output interface 7. The serial communication input interface 8 receives coordinate information and the like input from a digitizer.

20 [0010]

Reference numeral 9 represents a drawing signal processing unit which converts image data or the like developed on RAM 5 into image drawing signals. A liquid crystal panel 10 displays an image to be
25 projected upon a projector screen. If the projector is of a reflection type, light is radiated to the front surface of the liquid crystal panel 10, and reflected

by an image displayed on the liquid crystal panel 10 to be projected upon a projector screen via an optical system. If the projector is of a transmission type, light is radiated to the back surface of the liquid crystal panel to project an image displayed on the liquid crystal panel 10 upon a projector screen via an optical system. The details of the system of the projector after the optical system are omitted.

[0011]

10 Reference numeral 11 represents a digitizer interface (coordinate input means). The digitizer interface 11 receives raw data from the digitizer. The type of the digitizer is not particularly limited.

[0012]

15 Fig. 2 is a flow chart illustrating the operation to be executed when two display devices with a digitizer of this embodiment are used at the same time. This operation assumes a multi-display environment to be realized by Windows 98 or the like. The coordinate data input devices such as digitizers of the two display devices connected to the information processing device are connected in succession. The display device is connected to the information processing device, and the other coordinate data input device is connected to the display device. When converting the coordinate information or the like of the other coordinate input device to which the data has been entered and

transmitting such coordinate information or the like to the information processing device, the operation illustrated in the flow chart of Fig. 2 is executed.

[0013]

5 The display device connected to the information processing device is called a display device A, whereas the display device connected to the display device A is called a display device B. In this embodiment, two display devices are used. The coordinate value data
10 supplied from a digitizer of each display device is defined by using an absolute coordinate system having its origin at the upper left corner of the screen, an X-axis in the right direction, and a Y-axis in the down direction.

15 [0014]

Step S1 is an initializing process for initializing a mouse driver and the like of the information processing device. The initializing process is executed when a power supply is turned on,
20 when a reset button is depressed, or at other timings.

[0015]

Step S2 is a judgment step for judging whether the display device B inputs coordinate value data or the like. If coordinate value data or the like is input
25 from the display device B, then at Step S3 the display device A receives the coordinate data value or the like transmitted from the display device B via the

transmission means. The coordinate value data of the display device B has as its origin the upper left corner of the screen thereof. It is therefore necessary to convert the coordinate system so that the
5 coordinate value data has as its origin the upper left corner of the screen of the display device A in the multi-display environment.

[0016]

At Step S4 the display device A converts
10 (conversion means) the coordinate value data of the display device B so as to match the multi-display environment (divisionally display means). At Step S6 coordinate value data or the like is transmitted to the information processing device to thereafter return to
15 Step S2.

[0017]

If coordinate value data or the like is not input from the display device B at Step S2, then at Step S5 it is judged whether coordinate value data or the like
20 is input from the display device A. If coordinate value data or the like is not input from the display device A, the flow returns to Step S2. If coordinate value data or the like is input from the display device A, at Step S6 the coordinate value data or the like is
25 transmitted to the information processing device to thereafter return to Step S2. If coordinate value data or the like is not input from the display device A, the

flow returns to Step S2.

[0018]

In the embodiment, although two display devices are connected, three or more display devices may be
5 connected. Also in this embodiment, although the program is stored in ROM of the display device, the embodiment is also applicable to the case wherein the program is externally supplied to the system or device. In this case, a storage medium storing the software
10 program realizing the embodiment may be supplied to the system or device to make the system or device read the program from the medium to give the effects of the invention to the system or device.

Also in this embodiment, although a liquid crystal
15 panel is used, elements on which micro mirrors are arrayed such as DLP may be used if the projector of a reflection type is used.

The invention is applicable not only to a projector but also to other large screen display
20 devices such as PDP.

[0019]

[Other Embodiment]

In the first embodiment, although ROM is used as the non-volatile storage medium, other storage media
25 may also be used such as a hard disk, a floppy disk, an optical disk, a magneto optical disk, a CD-ROM, a CD-R, a CD-RW, a DVD, a DVD-R, a DVD-RAM, a magnetic tape,

and a non-volatile memory card.

[0020]

[Effect of the Invention]

As described above, according to a display device
5 described in claim 1, presentation or the like can be
performed by using a large screen display device. In
this case, in order to enter the coordinate value data
or the like, a pen is used for each coordinate data
input device such as a digitizer of each display
10 device. As compared with presentation by using a mouse
or the like, a presentation tool or the like can be
handled with hands to indicate a desired image on the
screen so that the presentation with a pen can be made
easier.

15 [0021]

According to a display device described in claim
2, in a multi-display environment such as Windows 98
for divisionally displaying a screen of the information
processing device with two juxtaposed display devices,
20 coordinate value data input from the second display
device is transmitted to the first display device which
converts the coordinate value data into the coordinate
value data of the multi-display environment coordinate
system of the information processing device. In the
25 multi-display environment with two juxtaposed display
devices, all coordinate input devices of the display
devices can be used by one pen.

[0022]

According to a display device described in claim 3, in a multi-display environment such as Windows 98 for divisionally displaying a screen of the information processing device with a plurality of (two or more) juxtaposed display devices, all coordinate input devices of the display devices can be used by one pen, in the multi-display environment with two or more juxtaposed display devices.

10 [0023]

According to a display device described in claim 4, in addition to the above-mentioned effects, since the display device comprises a storage medium for storing programs or the like of a CPU in an internal structure of the display device and various medium such as DVD, other than ROM, and its software can be adopted in a flexible manner, as the storage medium, a display device widely applicable can be provided.

[Brief Description of the Drawings]

20 [Fig. 1] A block diagram of a display device according to a first embodiment.

[Fig. 2] A flow chart illustrating the operation to be executed when two display devices with a digitizer of the first embodiment are used at the same time.

[Description of Reference Numerals or Symbols]

1: Display device, 2: System bus, 3: CPU, 4: ROM,

5: RAM, 6: Remote interface, 7: Serial communication output interface, 8: Serial communication input interface, 9: (Drawing) signal processing unit, 10: Liquid crystal panel, and 11: Digitizer interface.

[Name of the Document] Abstract

[Abstract]

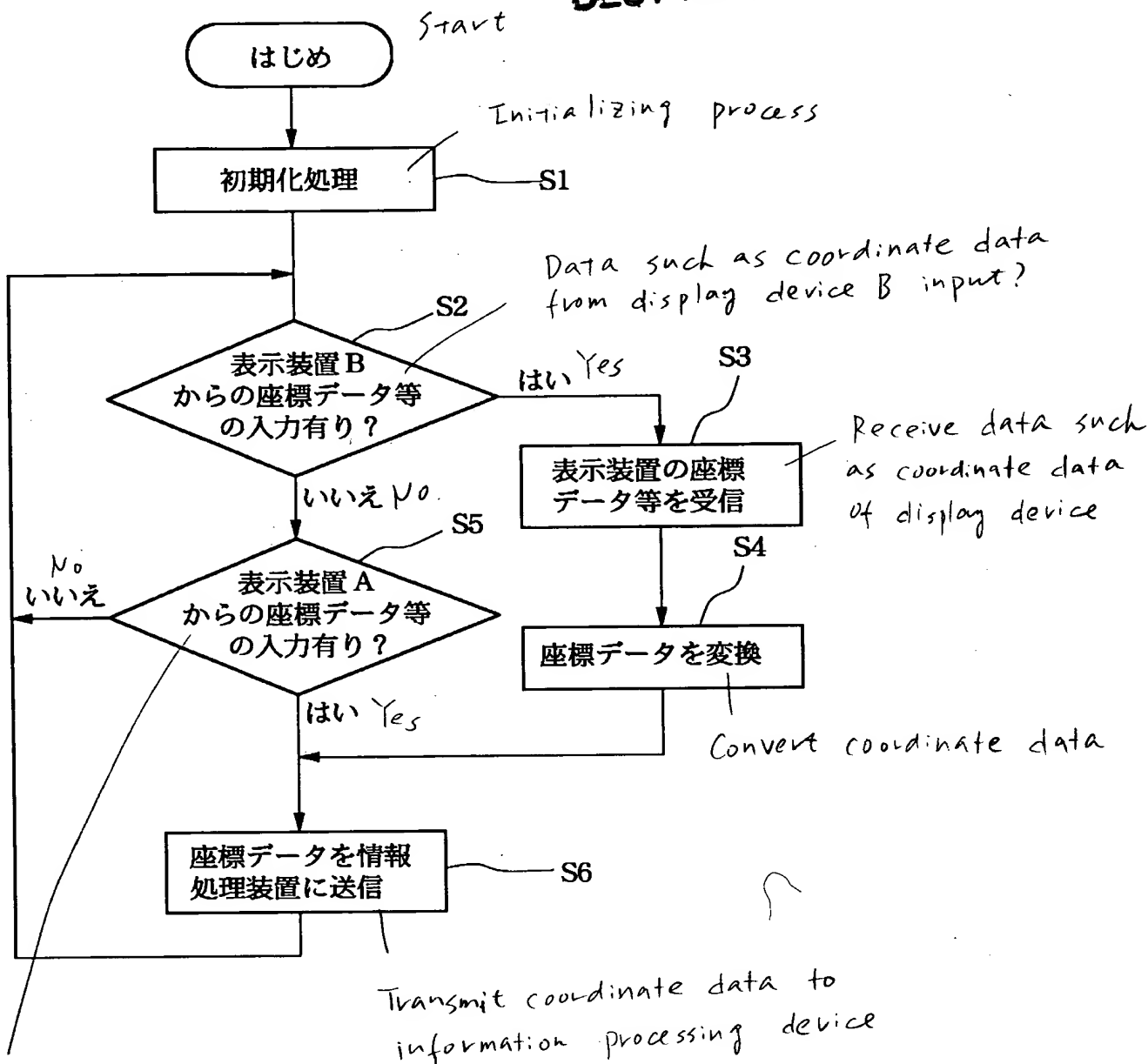
[Problem(s)] It is to provide a display device capable
of entering from digitizers of all display devices in a
5 multi-display environment.

[Means for Solving the Problem(s)] A display device
comprises a digitizer I/F 11, which is coordinate input
means for inputting coordinate of a display device 1
and a serial I/F output 7, which is transmission means
10 for transmitting the device data input to the display
device 1 from the display device 1 to an information
processing device. With this structure, presentation or
the like can be performed by using a large screen
display device. In this case, in order to enter the
15 coordinate value data or the like, a pen is used for
each coordinate data input device such as a digitizer
of each display device. As compared with presentation
by using a mouse or the like, a presentation tool or
the like can be handled with hands to indicate a
20 desired image on the screen so that the presentation
with a pen can be made easier.

[Elected Drawing] Fig. 1

【図2】 Fig. 2

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Data such as coordinate data from display device A input?

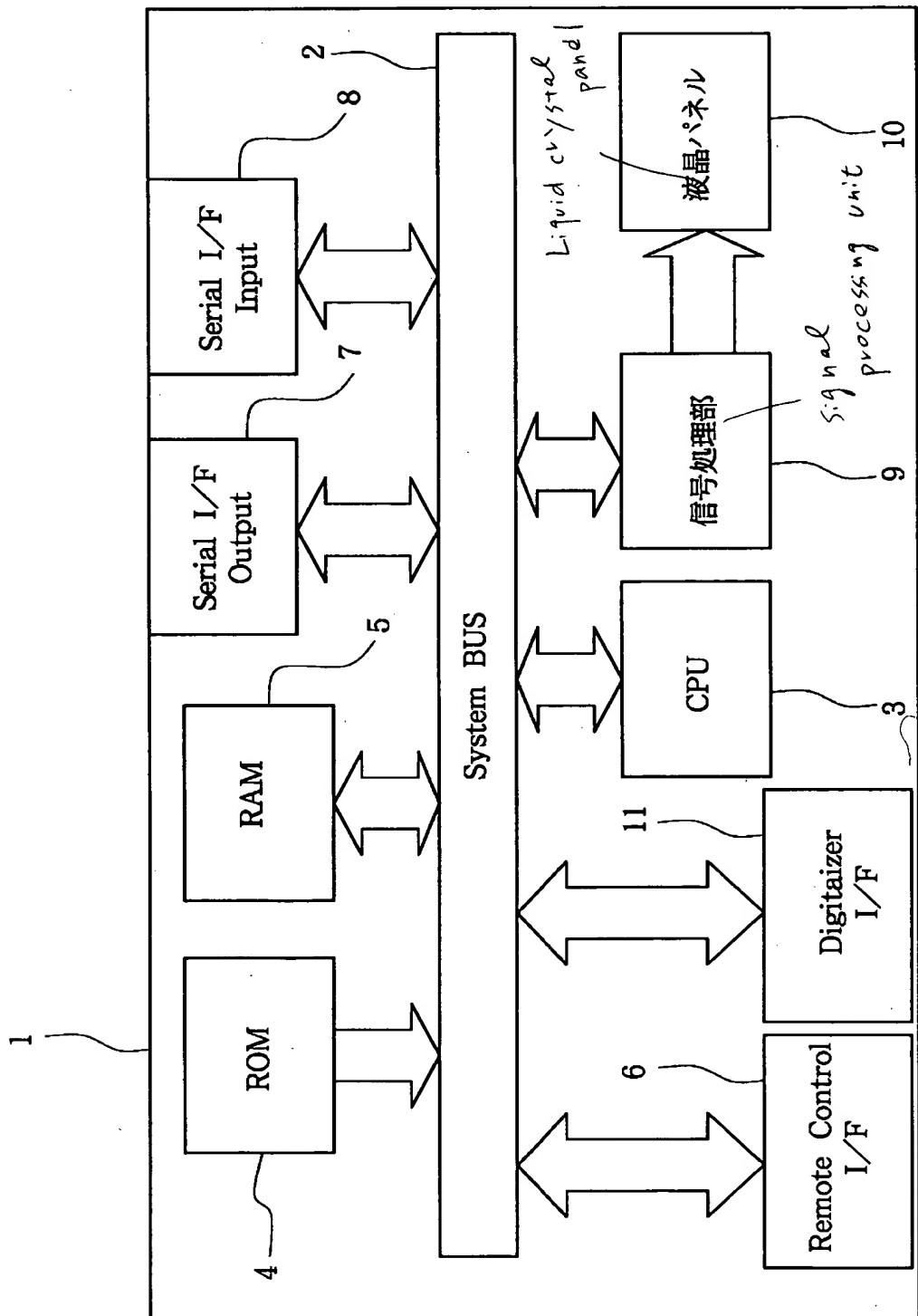
発明番号= 4172006

【書類名】

図面

[Name of the Document] Drawings

【図1】 Fig. 1



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